

1 Amendments to the Specification

2 Please replace the paragraph beginning on page 2, line 21 and
3 ending on page 3, line 16 with the following rewritten paragraph:

5 On the transmitter side of the communication channel, the
6 analog signal has a baseband bandwidth of +/-f and is converted to
7 n bit data words by the analog to digital converter at a sampling
8 rate exceeding the Nyquist rate of 2f samples per second. These n
9 bit data words are parallel data bit signals that are converted
10 into a serial bit stream at a rate of 2fn bps. To determine the
11 ordering of the least to most significance bits of the data words
12 in the serial bit stream, unique and easily identifiable
13 synchronization frame words are periodically inserted into the
14 serial data stream. These synchronization frames words are overhead
15 data and are typically one to ten percent of the informational data
16 words. This overhead data increases the required rate of bits
17 transmitted per second to $(2fn(1+s/100))$ bps where s is the
18 percentage of the serial bit stream associated with synchronization
19 frame words. To accomplish the communications at the original data
20 bit, the serial stream including the frame words and redundant
21 error correction bits must be reclocked to a higher data rate
22 having a shorter bit duration time. In order to maintain data rate
23 of the data words when the serial bit stream has additional
24 synchronization frame words, the serial bit stream will be clocked
25 at a higher rate by bit synchronization. The received data stream
26 must also therefore be coherently reclocked to recover the original
27 data. Non-integer multiples of the transmitted data require
28 frequency synthesizers and other digital word buffers.

1 Please replace the paragraph beginning on page 11, line 14 and
2 ending on page 12, line 9 with the following rewritten paragraph:
3

4 The laser crosslink is well suited for use in small satellites such
5 as nanosatellites having very limited power resources. The laser
6 crosslink has a reduced number of components reducing power
7 requirements. One application of small satellites is a signal
8 receiver that transmits digitized copies of the received signals to
9 other satellites for processing. This has uses in either signal
10 intelligence or for digital nonregenerative transponders. The laser
11 crosslink offers lower power consumption and fewer parts by
12 integrating a modulator and A/D converter with the transmitter and
13 receiver. The laser crosslink reduces filter requirements for
14 small satellite using direct modulation of a laser while reducing
15 manufacturing tolerances for smaller satellite. No specialized
16 modulator is required by the laser. No error correction is required
17 because redundancy is added by the over sampling of the sigma delta
18 converter. No bit or frame synchronization is needed between the
19 two satellites because the output of the digital filter may be
20 sampled at any time to reconstruct signal samples, that is, the
21 communication is asynchronous. No framing is needed in the data
22 stream because the data stream is self-synchronizing. Also, there
23 is no need to order bits from most to least significant bits as in
24 traditional digital data links because only the duration of the bit
25 time is required for proper data detection. These and other
26 advantages will become more apparent from the following detailed
27 description of the preferred embodiment.

28 ///

1 Please replace the paragraph beginning on page 18, line 1 and
2 ending on page 18, line 10 with the following rewritten paragraph:
3

4 The laser communication crosslink system is preferably used
5 for communicating analog signals in digital form. The laser
6 communication crosslink system need not use parallel to serial
7 conversion, frame synchronization, data reclocking bit
8 synchronization, nor forward error correction. An analog signal
9 may be communicated over the communication medium in digital form
10 for recovering a digital value of the analog signal. Those skilled
11 in the art can make enhancements, improvements, and modifications
12 to the invention, and these enhancements, improvements, and
13 modifications may nonetheless fall within the spirit and scope of
14 the following claims.

15
16
17
18
19
20
21
22
23
24
25
26
27
28 ///